

REMARKS/ARGUMENTS

Applicant has carefully reviewed and considered the Office Action mailed on December 29, 2005, and the references cited therewith.

Claims 1, 4-7, 10-18, 20, and 22-31 are amended, claim 3 is canceled, and no claims are added; as a result, claims 1, and 4-34 are now pending in this application.

§ 112 Rejection of the Claims

Claims 1, and 3-34 were rejected under 35 USC § 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the specification in such a way to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant respectfully traverses the rejection as follows.

Applicant respectfully submits that including “by closing switches” or “by alternative closing of switches” in the independent claims 1, 4, 10, 17, 23, 29, and 31, as amended, describes in an enabling manner how one single configurable H-bridge circuit changes configuration from a motor drive circuit into discrete switches each supplying electricity to a different electrically-powered component.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 112 rejection of independent claims 1, 4, 10, 17, 23, 29, and 31, as amended, as well as those claims that depend therefrom.

Claims 1 and 3 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as the invention. The limitation “as an H-Bridge circuit” makes the claim indefinite. Applicant respectfully traverses the rejection as follows.

Applicant respectfully submits that reciting both configurations in independent claims 1, as amended, as being of “the configurable H-bridge circuit” makes the claim definite. Also, independent claim 1, as amended, makes it clear

that the H-bridge circuit comprises four switches by reciting “two high switches connected to a voltage source” and “two low switches connected to ground”.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 112 rejection of independent claim 1, as amended. Dependent claim 3 has been canceled.

§ 102 Rejection of the Claims

Claims 1 and 3 were rejected under 35 USC § 102(b) as being anticipated by Hella (EP0833437) in view of Applicants’ admitted prior art. Applicant respectfully traverses the rejection as follows.

The Hella ‘437 reference appears to describe, “The semiconductor driver circuit element has individual quarter circuit bridge drivers, with a semiconductor chip (12) provided with a number of electronic switches (24, 26).” (Abstract). Hella ‘437 does not show a first configuration of the configurable H-bridge circuit with high switches and low switches connected together and coupled by closing switches to independently drive a motor as a first H-bridge circuit configuration and a second configuration of the configurable H-bridge circuit in which the high switches serve as first components and the low switches serve as second components, wherein each are coupled by closing switches to form a discrete switch where one high switch is coupled as a first component of a switch supplying electricity to an electrically-powered component and one low switch is coupled as a second component of a switch supplying electricity to a different electrically-powered component, the second configuration being different than the first configuration.

In contrast, Applicant’s independent claim 1, as amended, recites:

a first configuration of the configurable H-bridge circuit with high switches and low switches connected together and coupled by closing switches to independently drive a motor as a first H-bridge circuit configuration; and

a second configuration of the configurable H-bridge circuit in which the high switches serve as first components and the low switches serve as second components, wherein each are coupled by closing switches to form a discrete switch where one high switch is coupled as a first component of a switch supplying electricity to an electrically-powered component and one low switch is coupled as a second component of a switch supplying electricity to a different

electrically-powered component, the second configuration being different than the first configuration.

Although the figure of the Hella '437 reference appears to show three motors driven by what appear to be H-bridge circuits, one side of each H-bridge circuit for each motor is shared with another motor. This configuration differs from "coupled by closing switches to independently drive a motor as a first H-bridge circuit configuration", as recited in independent claim 1, as amended. Moreover, it appears that the circuitry used for components 52 and 54 in the Hella '437 figure is not arranged in an H-bridge configuration as such, nor does it form a portion of the H-bridges driving the three motors, which differs from two electrically-powered components being "coupled by closing switches" of "a second configuration of the configurable H-bridge circuit", as recited in independent claim 1, as amended. By reciting "the configurable H-bridge circuit" for the first and second configurations, the same H-bridge circuit is intended for each configuration. Therefore, the Applicant submits that the Hella '437 reference does not describe, teach, or suggest each and every element of the Applicant's independent claim 1.

The present disclosure claimed in independent claim 1, as amended, differs from the Hella '437 reference even in light of the Office Action's prior art contentions. The Office Action cited the Background section of the Application and stated that "Applicant's prior art teaches that it is well-known in the art that an H-bridge is configured to independently drive a motor." (Section 7 of the December 29, 2005, Office Action). The Applicant does not admit that it was well-known in the art that an H-Bridge is configured to independently drive a motor. However, the Applicant respectfully submits that even if it was well known to configure an H-bridge to independently drive a motor, this does not cure the deficiencies of the Hella '437 reference, as described above. That is, the above-cited section does not describe, teach, or suggest, "a first configuration of the configurable H-bridge circuit with high switches and low switches connected together and coupled by closing switches to independently drive a motor as a first H-bridge circuit configuration; and a second configuration of the configurable H-bridge circuit in which the high switches serve as first components and the low switches serve as second components" as recited in independent claim 1, as amended.

As such, Applicant respectfully submits that each and every element and limitation of independent claim 1, as amended, is not present in the Hella '437 reference or Applicant's admitted prior art. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of independent claim 1, as amended. Dependent claim 3 has been canceled.

§103 Rejection of the Claims

Claims 1, 3-7, 17-22, 29, and 30 were rejected under 35 USC § 103(a) as being unpatentable over Hella (DE4440064) in view of Applicants' admitted prior art. Applicant respectfully traverses the rejection as follows.

With regard to independent claim 1, as amended, the Examiner cites the Hella '064 reference as describing, "a first connection of the high and low switch connected together (T1 connected to T2 at X) to drive the motor (Fig. 1:M) as an h-bridge". (Section 6 of the December 29, 2005, Office Action). By showing no particular circuitry configuration in Fig. 2 with regard to driving the motor, and by showing every combination of T1, T2, T3, and T4 in Fig. 3 except T1 with T2, or T3 with T4, Hella '064 appears to describe a conventional H-bridge circuit. In addition, by stating, "One or more bridge circuits (B1, B2, B3, B4, BS) are each assigned a linking network (VN) which drives the load switch of the bridge circuit", the Hella '064 Abstract appears to describe a network that drives the load switch of the bridge circuit rather than an electrically-powered component to which electricity is supplied by a particular configuration of closed switches in an H-bridge circuit.

With regard to "Applicant's admitted prior art", the Background section of the specification recites, "an H-bridge circuit structure that enables a microprocessor or controller to independently control each motor in an imaging device." (Page 1, paragraph 0003). The Background does not describe a configuration of an H-bridge circuit wherein closing switches can form a discrete switch where one high switch is coupled as a first component of a switch supplying electricity to an electrically-powered component and one low switch is coupled as a second component of a switch supplying electricity to a different electrically-powered component.

Hence, neither Hella '064 nor Applicant's admitted prior art shows a second configuration of a configurable H-bridge circuit in which the high switches serve as

first components and the low switches serve as second components, wherein each are coupled by closing switches to form a discrete switch where one high switch is coupled as a first component of a switch supplying electricity to an electrically-powered component and one low switch is coupled as a second component of a switch supplying electricity to a different electrically-powered component, the second configuration being different than the first configuration.

In contrast, Applicant's independent claim 1, as amended, recites:

a second configuration of the configurable H-bridge circuit in which the high switches serve as first components and the low switches serve as second components, wherein each are coupled by closing switches to form a discrete switch where one high switch is coupled as a first component of a switch supplying electricity to an electrically-powered component and one low switch is coupled as a second component of a switch supplying electricity to a different electrically-powered component, the second configuration being different than the first configuration.

Independent claim 4, as amended, recites:

a configurable first H-bridge circuit that by alternative closing of switches includes a first configuration as a first motor drive circuit to drive a first motor, and includes a second configuration as discrete switches, each of the discrete switches configured to be coupled to supply electricity to independent electrically-powered components;

Independent claim 17, as amended, recites:

coupling the configurable H-bridge circuit to drive a motor in an event that the configurable H-bridge circuit is implemented as the motor drive circuit; and

coupling a discrete switch of the configurable H-bridge circuit as a component switch in an event that the configurable H-bridge circuit is implemented as the discrete switches to supply electricity to electrically-powered components.

In addition, independent claim 29, as amended, recites:

configuring the configurable H-bridge circuit in a first configuration to drive a motor in an event that the configurable H-bridge circuit is to be implemented as the motor drive circuit; and
configuring the configurable H-bridge circuit in a second configuration as the discrete switches in an event that a switch of the configurable H-bridge circuit is to be implemented as a component switch to supply electricity to independent electrically-powered components.

As such, Applicant respectfully submits that each and every element and limitation of independent claims 1, 4, 17, and 29, as amended, is not described, taught, or suggested in the Hella '064 reference and Applicant's admitted prior art, either individually or in combination. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of independent claims 1, 4, 17, and 29, as amended, as well as those claims that depend therefrom.

Dependent claim 3 has been canceled.

Claims 8 and 9 were rejected under 35 USC § 103(a) as being unpatentable over Hella (DE4440064) in view of Applicants' admitted prior art, in view of Hella (EP0833437). Applicant respectfully traverses the rejection as follows.

Claims 8 and 9 depend from independent claim 4. Applicant respectfully submits that independent claim 4, as amended, is in condition for allowance in view of Hella '064 and Applicant's admitted prior art. From Applicant's review of the Hella '437 reference, the reference does not cure the deficiencies of Hella '064 and Applicant's admitted prior art. That is, Hella '437 does not describe, teach, or suggest, "a configurable first H-bridge circuit that by alternative closing of switches includes a first configuration as a first motor drive circuit to drive a first motor, and includes a second configuration as discrete switches", as recited in independent claim 4, as amended.

As such, Applicant respectfully submits that each and every element and limitation of independent claim 4, as amended, is not described, taught, or suggested in Hella '064, Applicant's admitted prior art, and Hella '437, either individually or in combination. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of dependent claim 8 and 9.

Claims 10, 14, 15, 23-25, and 31-34 were rejected under 35 USC § 103(a) as being unpatentable over Barrus, et al. (U.S. Patent No. 6,082,914) in view of Hella (EP0833437) and Applicants' admitted prior art. Applicant respectfully traverses the rejection as follows.

With regard to independent claim 10, as amended, the Examiner cites the Barrus reference as describing, "a third H-bridge circuit (304) that includes a first

configuration as a motor drive circuit to drive a third motor (186).” (Section 10 of the December 29, 2005, Office Action). In Fig. 4, Barrus appears to show a “converter 272 is used to control the required current through the H bridge driver 274 for the D.C. motor 230.” (Col. 9, lines 12-14). Fig. 4 appears to show “an H bridge driver 296 connected to the motor 220”. (Col. 10, lines 45-46). Fig. 4 also appears to show “a stepper motor driver 304 is fundamentally an electric circuit that applies power to the stepper motor 186.” (Col. 10, line 67, through col. 11, line 2). Hence, Barrus appears to describe two H-bridge drivers (274, 296) and one driver (304) that “is fundamentally an electric circuit”, rather than “a third H-bridge circuit (304) that includes a first configuration as a motor drive circuit to drive a third motor (186).”

Additionally, as stated above with regard to the 102 rejection, the figure of the Hella ‘437 reference appears to show three motors driven by what appear to be H-bridge circuits; one side of each H-bridge circuit for each motor is shared with another motor. This configuration differs from, “a first configuration as a motor drive circuit to independently drive a third motor”, as recited in independent claim 10, as amended. Moreover, it appears that the circuitry used for components 52 and 54 in the Hella ‘437 figure is not arranged in an H-bridge configuration as such, nor does it form a portion of the H-bridges driving the three motors, which differ from, as recited in independent claim 10, as amended:

a configurable third H-bridge circuit that includes by alternative closing of switches a first configuration as a motor drive circuit to independently drive a third motor, and includes a second configuration as discrete switches that are each configured to be coupled to a different component as a component switch.

By reciting, “a configurable third H-bridge circuit that includes by alternative closing of switches” “a first configuration as a motor drive circuit” and “a second configuration as discrete switches”, the same H-bridge circuit is intended for each configuration.

With regard to “Applicant’s admitted prior art”, the Background section of the specification recites, “an H-bridge circuit structure that enables a microprocessor or controller to independently control each motor in an imaging device.” (Page 1, paragraph 0003). The Background does not describe, “a configurable third H-bridge

circuit that includes by alternative closing of switches a first configuration as a motor drive circuit to independently drive a third motor, and includes a second configuration as discrete switches that are each configured to be coupled to a different component as a component switch” as recited by independent claim 10, as amended.

Independent claim 23, as amended, recites:

configuring by alternative closing of switches a configurable third H-bridge circuit of the multiple H-bridge circuit in a first configuration to independently drive a third motor in an event that the third H-bridge circuit is to be implemented as a motor drive circuit; and configuring the third H-bridge circuit in a second configuration as discrete switches that are each configured to be coupled to a different component in an event that a switch of the third H-bridge circuit is to be implemented as a component switch.

In addition, independent claim 31, as amended, recites:

means to configure by alternative closing of switches a configurable first H-bridge circuit in a first configuration as a motor drive circuit to independently drive a third motor; and

means to configure by alternative closing of switches the configurable first H-bridge circuit in a second configuration as discrete switches to supply electricity to independent electrically-powered components.

As such, Applicant respectfully submits that each and every element and limitation of independent claims 10, 23, and 31, as amended, is not described, taught, or suggested in Barrus, Hella ‘437, and Applicant’s admitted prior art, either individually or in combination. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of independent claims 10, 23, and 31, as amended, as well as those claims that depend therefrom.

Claims 11-13, 16, and 26-28 were rejected under 35 USC § 103(a) as being unpatentable over Barrus, et al. (U.S. Patent No. 6,082,914), Hella (EP0833437), and Applicants’ admitted prior art as applied to the claims 10 and 23 above, further in view of Hella (DE4440064). Applicant respectfully traverses the rejection as follows.

Claims 11-13, and 16 depend from independent claim 10 and claims 26-28 depend from independent claim 23. Applicant respectfully submits that independent

claims 10 and 23, as amended, are in condition for allowance in view of Barrus, Hella '437, and Applicant's admitted prior art. From Applicant's review of the Hella '064 reference, the reference does not cure the deficiencies of Barrus, Hella '437, and Applicant's admitted prior art. That is, Hella '064 does not describe, teach, or suggest:

a configurable third H-bridge circuit that includes by alternative closing of switches a first configuration as a motor drive circuit to independently drive a third motor, and includes a second configuration as discrete switches that are each configured to be coupled to a different component as a component switch.

as recited in independent claim 10, as amended. Nor does Hella '064 describe, teach, or suggest:

configuring by alternative closing of switches a configurable third H-bridge circuit of the multiple H-bridge circuit in a first configuration to independently drive a third motor in an event that the third H-bridge circuit is to be implemented as a motor drive circuit; and configuring the third H-bridge circuit in a second configuration as discrete switches that are each configured to be coupled to a different component in an event that a switch of the third H-bridge circuit is to be implemented as a component switch.

as recited in independent claim 23, as amended.

As such, Applicant respectfully submits that each and every element and limitation of independent claims 10 and 23, as amended, is not described, taught, or suggested in Barrus, Hella '437, Applicant's admitted prior art, and Hella '064, either individually or in combination. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of dependent claims 11-13, 16, and 26-28.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney Gregg W. Wisdom at (360) 212-8052 to facilitate prosecution of this matter.

At any time during the pendency of this application, please charge any additional fees or credit overpayment to the Deposit Account No. 08-2025.

CERTIFICATE UNDER 37 CFR §1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS AMENDMENT Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450 on this 8th day of March, 2006.

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